NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE SPECIFICATION

POND SEALING OR LINING

Asphalt-Sealed Fabric Liner

(Number)

CODE 521E

Installation

Subgrade preparation. The area to be lined shall be drained and allowed to dry until the surface is firm and can support the workers and equipment that must travel over it during installation of the lining.
All banks and fills in the area to be lined must be sloped not steeper than 1 to 1 for exposed lining and 2-1/2 horizontal to 1 vertical for buried linings.

The foundation area shall be smooth and free of projections that can damage the lining. Stumps and roots shall be removed. Rocks, hard clods, and other such materials shall be removed, rolled so as to provide a smooth surface, or covered with a cushion of fine soil. If needed, an effective sterilant shall be applied to the subgrade at the rate recommended by the manufacturer.

An anchor trench shall be excavated around the area to be lined at the planned elevation of the top of the lining. The trench shall be 8 to 10 in. deep and about 12 in. wide.
All lining material shall be free of damage or defect. Each package delivered to the job site shall bar the name of the material, the manufacturer's name or symbol, the quantity therein, and the thickness or weight of the material.

Placement. The liner shall be fabricated onsite to the shape of the basin according to the manufacturer's instructions. Joints shall be machine stitched with heavy-duty, inert, synthetic fiber thread.

The fabric shall be unrolled so that the unfused side is up after installation. Joints shall be made by placing two widths of the fabric together, one directly on top of the other, aligning the edges and seaming at least 1 in. away from the fabric edge. The top layer of the fabric shall then be unfolded so that the seam edge is beneath the liner. The jointing operation shall be continued until the entire liner is completed.

Attachments to any pipe projecting through the lining shall consist of boots fabricated of the lining material, slipped over the projecting pipe, bonded to the pipe mastic, and hand stitched or machine stitched to the liner. Attachments to concrete, and similar structures shall be sealed with mastic and fastened with a batten strip.

Liner edges shall be trimmed and a minimum of 12 in. of fabric placed in the perimeter anchor trench. Trenches shall be backfilled only enough to secure the edges.
When the polypropylene fabric is in place, it shall be sealed by spraying it with the following proportioned mixture of sealant:

Anionic asphalt emulsion SS-1h.	100	gal
Asbestos fiber 7M-02.....	60	lb
Water.....	44	gal
Wetting agent (Phillips or equivalent)	2	lb

The water and wetting agent shall be mixed in a tank or a suitable container. The asbestos shall be added and mixed. The asphalt emulsion shall then be added and thoroughly mixed.

The sealant temperature shall not exceed 200 degrees F when applied. The ambient air temperature shall be 45 degrees F or higher to insure sealant cure. Two coats of sealant mix shall be applied to the liner at a rate of 0.7 gal/yd2/coat. Each coat shall be allowed to cure sufficiently so that it is not tacky before

applying the next coat or placing the liner in service. Trench edges shall be sprayed a minimum of 6 in. below grade.

After curing is completed, the anchor trenches shall be backfilled and compacted.

Safety. Workers exposed to asbestos material shall comply with the Occupational Safety and Health Act and Environmental Protection Agency regulations concerning handling and use of asbestos material.

Materials

Anionic asphalt emulsion SS-1h shall be used. All membranes shall meet or exceed the requirements in table 1. Minimum nominal thickness is 100 mils.

Table 1.--Required characteristics of asphalt-sealed fabric liners

Test Description	Requirement	Test Method
Fabric material	95 pct polypropylene	---
Fabric structure	Nonwoven and fused on one side	---
Fabric weight.....oz/yd	25.0	---
Fabric maximum pore diametee./u m.	500	ASTM-E-128
		ASTM-D-36 (Solvent Extraction)
Asphalt sealant-R&B softening point..deg F	200	
Weight of asbestos fibers 7M-02 in cured sealant.....pct. by weight	10	
Ductility of cured sealant.....cm	5	ASTM-D-113
Minimum weight of asbestos asphalt residual.....lb/yd2	3.5	ASTM-D-113
Minimum membrane thickness.....mil	100	.ASTM-D-113
Minimum membrane specific gravity	1.0 (air evacuated from fabric)	ASTM-D-113
Breaking strength, either direction.....lb	50	ASTM-D-1682
Elongation, either direction.....pct.	80	ASTM-D-1682
Joint strength, pct of tensile.....pct	100	ASTM-D-1682
Tear resistance (notched sample in tension) ...lb	20	ASTM-D-1004-Die C
Elmendorf tear resistance.....g.	3200	ASTM-D-1922
Puncture resistance.....lb.	64	1USDA-ARS
Hydrostatic burst-Mullen.....lb/in.2	200	2ASTM-D-751
Hydraulic testing, 35-ft head	No water loss	Pressure Cell

1. A 3/8-in. sphere forced into membrane at 10 in./min. Pounds force at rupture is recorded.

2. A 6-in diameter place in pressure cell one side of the sample, reinforced by ¼ inch mesh screen, is open to air, water under pressure equivalent to a 35-ft water depth (15 Levin 2) at 100 degrees F is applied to the other side for 7 days. Observe for water loss through the membrane.